Amendments to the Claims:

1. (Cancelled)

2 – 9. (Cancelled)

10. (Previously Presented) A method of optical detection of characteristic quantities of an illuminated specimen, comprising:

detecting a signal that is backscattered, reflected and/or fluoresced and/or transmitted from the specimen by a spatially resolving detector wherein radiation coming from the specimen is imaged on the detector;

shifting a position of the radiation which is measured in a spatially resolved manner relative to the detector; and

determining intermediate values by an algorithm from signals measured in different shifts for purposes of increasing the spatial resolution of the detector;

wherein a dispersive element is swiveled for increasing a spectral resolution and, further, an additional movement of the detector and/or a scan unit is carried out.

11 – 22 (Cancelled)

23. (Currently Amended) A method of optical detection of characteristic quantities of an illuminated specimen, comprising: ~~The method according to claim 1,~~

detecting a signal that is backscattered, reflected and/or fluoresced and/or transmitted from the specimen by a spatially resolving detector wherein radiation coming from the specimen is imaged on the detector;

shifting a position of the radiation which is measured in a spatially resolved manner relative to the detector; and

determining intermediate values by an algorithm from signals measured in different shifts for purposes of increasing the spatial resolution of the detector;

wherein a dispersive element carries out the shifting of the radiation position and

remains stationary in at least one of its swiveling axes, and a spatially changing effect of the swiveling in this axis is carried out by a scan unit and/or by displacement of the detector,

~~wherein~~ and a comparison of a measured signal with a reference signal is carried out via comparators in detection channels and in case the reference signal is not reached and/or is exceeded by the measured signal, a change in an operating mode of at least one detection channel is carried out.

24 –25 (Cancelled)

26. (Cancelled)

27. (Previously Presented) A method of optical detection of characteristic quantities of an illuminated specimen, comprising:

detecting a signal that is backscattered, reflected and/or fluoresced and/or transmitted from the specimen by a spatially resolving detector wherein radiation coming from the specimen is imaged on the detector;

shifting a position of the radiation which is measured in a spatially resolved manner relative to the detector; and

determining intermediate values by an algorithm from signals measured in different shifts for purposes of increasing the spatial resolution of the detector;

wherein signals of detection channels are generated by photon counting and subsequent digital-to-analog conversion.

28 – 36 (Cancelled)

37. (Currently Amended) A method of optical detection of characteristic quantities of an illuminated specimen, comprising: ~~The method according to claim 1,~~

detecting a signal that is backscattered, reflected and/or fluoresced and/or transmitted from the specimen by a spatially resolving detector wherein radiation coming from the specimen is imaged on the detector;

shifting a position of the radiation which is measured in a spatially resolved

manner relative to the detector; and

determining intermediate values by an algorithm from signals measured in different shifts for purposes of increasing the spatial resolution of the detector;

wherein a dispersive element carries out the shifting of the radiation position and remains stationary in at least one of its swiveling axes, and a spatially changing effect of the swiveling in this axis is carried out by a scan unit and/or by displacement of the detector,

wherein the scan unit comprises an x-y scanner ~~further comprising an X-Y scanner arranged in an illumination path~~.

38 – 46 (Cancelled)

47. (Cancelled)

48 – 55 (Cancelled)

56. (Previously Presented) An arrangement for optical detection of characteristic quantities of an illuminated specimen, comprising:

a detector for detecting a signal that is backscattered, reflected and/or fluoresced and/or absorbed from the specimen, said detector being a spatially revolving detector wherein radiation coming from the specimen is imaged on the detector;

means for imaging the signal that is backscattered, reflected and/or fluoresced and/or absorbed from the specimen, on the detector;

means for shifting a position of the radiation which is measured in a spatially resolved manner relative to the detector; and

means for determining intermediate values using an algorithm from signals measured in different shifts for purposes of increasing the spatial resolution of the detector;

wherein a dispersive element is swiveled for increasing a spectral resolution and, further, an additional movement of the detector and/or a scan unit is carried out.

57 – 67 (Cancelled)

68. (Currently Amended) An arrangement for optical detection of characteristic quantities of an illuminated specimen, comprising: ~~The arrangement according to claim 47,~~

a detector for detecting a signal that is backscattered, reflected and/or fluoresced and/or absorbed from the specimen, said detector being a spatially revolving detector wherein radiation coming from the specimen is imaged on the detector;

means for imaging the signal that is backscattered, reflected and/or fluoresced and/or absorbed from the specimen, on the detector;

means for shifting a position of the radiation which is measured in a spatially resolved manner relative to the detector; and

means for determining intermediate values using an algorithm from signals measured in different shifts for purposes of increasing the spatial resolution of the detector;

wherein the shifting means includes a dispersive element that carries out the shifting of the radiation position and the dispersive element remains stationary in at least one of its swiveling axes, and a spatially changing effect of the swiveling in this axis is carried out by a scan unit,

~~wherein~~ and a comparison of a measured signal with a reference signal is carried out via comparators in detection channels and in case the reference signal is not reached and/or is exceeded by the measured signal, a change in an operating mode of at least one detection channel is carried out.

69 – 70. (Cancelled)

71. (Cancelled)

72. (Previously Presented) An arrangement for optical detection of characteristic quantities of an illuminated specimen, comprising:

a detector for detecting a signal that is backscattered, reflected and/or fluoresced and/or absorbed from the specimen, said detector being a spatially revolving detector wherein radiation coming from the specimen is imaged on the detector;

means for imaging the signal that is backscattered, reflected and/or fluoresced and/or absorbed from the specimen, on the detector;

means for shifting a position of the radiation which is measured in a spatially resolved manner relative to the detector; and

means for determining intermediate values using an algorithm from signals measured in different shifts for purposes of increasing the spatial resolution of the detector;

wherein signals of detection channels are generated by photon counting and subsequent digital-to-analog conversion.

73 – 81 (Cancelled)

82. (Currently Amended) An arrangement for optical detection of characteristic quantities of an illuminated specimen, comprising: ~~The arrangement according to claim 47,~~

a detector for detecting a signal that is backscattered, reflected and/or fluoresced and/or absorbed from the specimen, said detector being a spatially revolving detector wherein radiation coming from the specimen is imaged on the detector;

means for imaging the signal that is backscattered, reflected and/or fluoresced and/or absorbed from the specimen, on the detector;

means for shifting a position of the radiation which is measured in a spatially resolved manner relative to the detector; and

means for determining intermediate values using an algorithm from signals measured in different shifts for purposes of increasing the spatial resolution of the detector;

wherein the shifting means includes a dispersive element that carries out the shifting of the radiation position and the dispersive element remains stationary in at least one of its swiveling axes, and a spatially changing effect of the swiveling in this axis is carried out by a scan unit, and ~~further including~~

an X-Y scanner arranged in an illumination path.

83 - 90 (Cancelled)